

Attorney Docket No.: 740-013US3 (IU-0030)
Inventors: Kwon, Byoung
Serial No.: 10/027,199
Filing Date: December 20, 2001
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This listing of claims will replace all prior versions,
and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): An isolated nucleic acid molecule encoding for a human receptor protein H4-1BB comprising SEQ ID NO:2.

Claim 2 (previously presented): The isolated nucleic acid molecule of claim 1 having a nucleotide sequence comprising SEQ ID NO:1.

Claim 3 (previously presented): The isolated nucleic acid molecule of claim 1, identified as pH4-1BB deposited at the Agricultural Research Service Culture Collection with the accession number NRRL B21131.

Claim 4 (previously presented): The isolated nucleic acid molecule of claim 2 and fragments thereof, wherein said fragments encode a protein comprising the extracellular domain of SEQ ID NO:2.

Claim 5-18 (canceled).

Claim 19 (previously presented): An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

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- a) nucleotides of H4-1BBFI (SEQ ID NO:3);
- b) nucleotides of H4-1BBFII (SEQ ID NO:4);
- c) nucleotides of H4-1BBRI (SEQ ID NO:5);
- d) nucleotides of H4-1BBRII (SEQ ID NO:6);
- e) nucleotides of SEQ ID NO:7;
- f) nucleotides of SEQ ID NO:8;
- g) nucleotides of a DNA encoding a soluble human 4-1BB polypeptide comprising the extracellular domain of human 4-1BB (amino acids 1-186 of SEQ ID NO:2) or a fragment of the extracellular domain capable of binding a 4-1BBL; and
- h) nucleotides of subparagraph g) wherein said DNA additionally encodes a polypeptide that is not a human 4-1BB polypeptide and which is located C-terminal to the extracellular domain of human 4-1BB polypeptide.

Claim 20 (previously presented): An isolated nucleic acid molecule encoding a human 4-1BB polypeptide, wherein said molecule comprises a nucleotide sequence selected from the group consisting of:

- a) nucleotides 41-805 of SEQ ID NO:1; and
- b) nucleotides 41-598 of SEQ ID NO:1.

Claim 21 (previously presented): A recombinant expression vector comprising the nucleic acid molecule of claim 19 g), 19 h), or 20 operably linked to regulatory sequences suitable for expression of the nucleic acid molecule in a host cell.

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Claim 22 (previously presented): A recombinant expression vector comprising a recombinant nucleic acid molecule comprising a nucleic acid segment encoding SEQ ID NO:2 or the extracellular domain thereof operably linked to regulatory sequences suitable for expression of the nucleic acid segment in a host cell.

Claim 23 (previously presented): The recombinant expression vector of claim 22 wherein the recombinant nucleic acid molecule further comprises a nucleic acid segment that encodes a polypeptide that is no SEQ ID NO:2 or the extracellular domain thereof and which is located C-terminal to SEQ ID NO:2 or the extracellular domain thereof.